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REMARKS

Claims 1, 2, 5, 6, 9, 10, and 13-22 are pending in the present application. Claims 1, 5, 9, and 19 are amended by this amendment. No new matter is added by the amendments and new claims, which are supported throughout the specification and figures. In view of the amendments and the following remarks, favorable reconsideration of this case is respectfully requested.

Claims 1, 2, 9, 10, 13, 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 4,875,101 to Endo et al. (hereinafter referred to as Endo) in view of United States Patent No. 4,696,021 to Kawahara et al. (hereinafter referred to as Kawahara) and in further view of Applicant's Allegedly Admitted Prior Art (hereinafter referred to as AAAPA). Applicants respectfully traverse.

Claim 1 relates to a method for driving a solid-state image pickup device which stores, in a plurality of photo-electric conversion units, signal charges corresponding to an incident light during a prescribed time period. Each of the photo-electric conversion units is provided with an overflow drain (OFD) structure, which *excludes surplus charges from the photo-electric conversion units by an electric potential barrier*. The *electric potential barrier is maintained at a first level between the OFD structure and each of the photo-electric conversion units* during the prescribed time period, and reads out, *after cutting off the incident light by a cut-off means* such as a mechanical shutter, the signal charges. The *read-out procedures are carried out during a time period other than the prescribed time period*.

Regarding the rejection of claim 1, the Examiner asserts that Endo discloses all of the features of the claim except that each of the photo-electric conversion units is

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provided with an overflow drain structure. (Office Action; page 3, lines 6-8). However, Endo does not disclose or suggest excludes surplus charges from the photo-electric conversion units by an electric potential barrier, or an electric potential barrier maintained at a first level between the OFD structure and each of the photo-electric conversion units during the prescribed time period, as recited in claim 1. The Examiner asserts that Endo discloses this feature between a photodiode and element SD (Office Action; page 2, lines 15-17). However, figures 4A to 4I of Endo apparently illustrate a change over time in a *potential well formed in a substrate region under a vertical charge transfer section* in order to explain how to transfer excess charges to a drain section in the vertical charge transfer section of the image sensor (Endo; col. 3, lines 12-16). That is, figures 4A to 4I of Endo show *a potential well formed in a substrate region under a vertical charge transfer section* and the potential barrier well *is not* an electric potential barrier maintained between a photo-electric conversion unit and an OFD structure. On the other hand, in the present invention, the electric potential barrier is maintained between a photoelectric conversion unit and the OFD structure, as recited in claims 1 and 19. Therefore, since neither reference discloses or suggests this feature, the references do not render the claim unpatentable.

Additionally, Endo does not indicate that an electric potential is raised from a first level to a higher level *after* incident light is cut off. As is apparent from figures 3A-3H of Endo, period E falls within vertical blanking period Tb. The Examiner asserts that period E represents the raising of the potential barrier (Office Action; page 3, lines 3-4; citing figure 4G). However, vertical blanking period Tb represents a time in which incident light is not cut off. According to Endo, "image light is kept incident on CCD image

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sensor 10 during vertical blanking period Tb.” (Endo; col. 8, lines 49-51). Therefore, since period E in Endo, which the Examiner asserts discloses the raising of the electric potential recited in claim 1, does not occur after the “cutting off said incident light by cut-off means”, this feature of Endo does not anticipate claim 1. Therefore, since neither reference discloses or suggests this feature, the references do not render the claim unpatentable.

However, in the interest of expediting prosecution, the independent claims have each been amended to clarify that the raising of the electric potential barrier occurs after the cutting off of incident light. In particular, in amended claim 1, the read-out procedures include, *inter alia*, the steps of *cutting off the incident light* and *raising up the electric potential barrier to a higher level than the first level after the cutting off of the incident light*. As discussed above, it is respectfully submitted that Endo does not disclose that an electric potential barrier is raised after cutting off incident light, and as shown above, teaches away from such a feature by disclosing that image light is incident during the entire vertical blanking period Tb. Period E, which the Examiner asserts discloses the raising of an electric potential barrier is fully encompassed by vertical blanking period Tb, and therefore, for at least this additional reason, claim 1 is allowable.

Independent claims 5 and 9 also recite the feature discussed above in regard to claim 1, and are therefore allowable at least for the same reasons as claim 1 is allowable. Dependent claims 2, 10, 13, 14, 17, and 18 are allowable for at least the same reasons as their respective base claims are allowable.

Claims 19-22 are not referred to in the formal rejection of the claims in the Office Action at page 2, lines 7-9, but are mentioned briefly on page 4, line 20. In any case,

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claim 19 includes features analogous to those discussed above in regard to claim 1, and therefore is allowable for at least the same reasons as claim 1 is allowable. Claims 20-22 are allowable based on their dependence on claim 19.

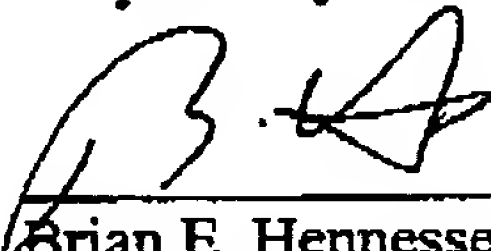
Claims 5, 6, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo in view of Kawahara and in further view of United States Patent No. 5,903,021 to Lee et al. (hereinafter referred to as Lee). Applicants respectfully traverse.

Claims 5, 6, 15, and 16 depend from claim 1, and the addition of Lee fails to cure the critical deficiency discussed above in regard to claim 1. Therefore these claims are allowable for at least the same reasons as claim 1 is allowable.

In view of the remarks set forth above, this application is believed to be in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged on Deposit Account 50-1290.

Respectfully submitted,



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